

IN THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

Claims 1 to 21 (cancelled).

Claim 22 (new): A device for producing electricity from heat produced in a core of a nuclear reactor comprising:

- a primary circuit including helium and circulating the helium to cool the core of the nuclear reactor;

- an electric generator;

- a drive shaft driving the electric generator;

- a gas turbine driving the drive shaft;

- a secondary circuit including a mixture of helium and nitrogen, the secondary circuit circulating the mixture of helium and nitrogen, the gas turbine driven by the mixture of helium and nitrogen in the secondary circuit;

- a heat exchanger connected to the primary circuit and secondary circuit and exchanging heat from the helium of the primary circuit to the mixture of helium and nitrogen in the secondary circuit; and

- a tertiary circuit including water and steam, the tertiary circuit circulating the water and the steam, the tertiary circuit including a steam generator and a steam turbine, the steam generator receiving the water at an inlet and providing the steam at an outlet, the steam driving the steam turbine, the steam generator connected to the secondary circuit downstream of the gas turbine, and being heated by the mixture of helium and nitrogen in the secondary circuit.

Claim 23 (new): The device according to claim 22, further comprising a further heat

exchanger exchanging heat from the helium and nitrogen in the secondary circuit downstream of the steam generator and further comprising a fourth circuit heated by the further heat exchanger.

Claim 24 (new): The device according to claim 23, wherein the fourth circuit circulates water.

Claim 25 (new): The device according to claim 22, wherein the tertiary circuit includes a further heat exchanger downstream from the steam generator, the further heat exchanger receiving wet steam from the steam turbine, the further heat exchanger being heated by the mixture of helium and nitrogen in the secondary circuit so as to convert the wet steam to dry steam.

Claim 26 (new): The device according to claim 25, wherein the tertiary circuit includes a further steam turbine, the further steam turbine being driven by the dry steam.

Claim 27 (new): The device according to claim 22, further comprising a counter-current heat exchanger exchanging heat from mixture of helium and nitrogen in the secondary circuit to the tertiary circuit.

Claim 28 (new): The device according to claim 22, wherein the heat exchanger is a plate exchanger.

Claim 29 (new): The device according to claim 22, wherein the secondary circuit includes compressor pressurizing the mixture of nitrogen and helium of the secondary circuit to a pressure of the helium in the primary circuit.

Claim 30 (new): The device according to claim 22, further comprising a pressure equalizing valve connected to the primary circuit as well as to the secondary circuit to maintain the pressure of the helium in the primary circuit to that of the mixture of nitrogen

and helium in the secondary circuit at the heat exchanger.

Claim 31 (new): The device according to claim 22, wherein both the gas turbine and the steam turbine drive the drive shaft.